

A study of the genus *Xylotrechus* Chevrolat (Coleoptera: Cerambycidae) from Beijing, China

Meiying LIN^{1,2}, Siqin GE^{2①}, Nengwen XIAO^{3①}

1. Engineering Research Center for Forest and Grassland Disaster Prevention and Reduction, Mianyang Normal University, Mianyang, Sichuan 621000, China

2. Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China

3. State Environmental Protection Key Laboratory of Regional Eco-process and Function Assessment, Chinese Research Academy of Environmental Sciences, Beijing 100012, China

Abstract: Ten species of the genus *Xylotrechus* Chevrolat, 1860 from Beijing are studied. *Xylotrechus pekingensis* Pic, 1939 is reinstated from synonym of *Xylotrechus yanoi* Gressitt, 1934, and newly recorded from Hebei and Shaanxi Provinces. *Xylotrechus bifeneistratus* Pic, 1916 is proposed as a new junior synonym of *Xylotrechus polyzonus* (Fairmaire, 1888), both were described from Beijing, China. Three species, *X. ibex* (Gebler, 1825), *X. pyrrhoderus* Bates, 1873, and *X. robusticollis* (Pic, 1936), are reported from Beijing for the first time. Several new localities are added to the related species based on specimens examined. A key to the ten species of *Xylotrechus* Chevrolat, 1860 from Beijing is provided.

Key words: Cerambycinae; Clytini; taxonomy; new synonym; new record

北京的脊虎天牛属分类研究（鞘翅目：天牛科）

林美英^{1,2}, 葛斯琴^{2①}, 肖能文^{3①}

1. 绵阳师范学院, 森林与草原防灾减灾工程研究中心, 四川 绵阳 621000; 2. 中国科学院动物研究所, 动物进化与系统学院重点实验室, 北京 100101; 3. 中国环境科学研究院, 国家环境保护区域生态过程与功能评估重点实验室, 北京 100012

摘要: 对分布于北京的 10 种脊虎天牛属甲虫开展了分类研究, 恢复了北京脊虎天牛 *Xylotrechus pekingensis* Pic, 1939 的地位, 不再是宽带脊虎天牛 *Xylotrechus yanoi* Gressitt, 1934 的异名, 报道了本种在河北和陕西的新分布记录。提出双带脊虎天牛 *Xylotrechus bifeneistratus* Pic, 1916 是四带脊虎天牛 *Xylotrechus polyzonus* (Fairmaire, 1888) 的新异名, 两者的模式标本均产自北京。本文还报道了 3 种北京新记录种: 显纹脊虎天牛 *X. ibex* (Gebler, 1825)、葡脊虎天牛 *X. pyrrhoderus* Bates, 1873 和黑胸脊虎天牛 *X. robusticollis* (Pic, 1936)。通过检视标本, 很多新的分布信息被加入到相关的种类。最后本文提供了分布于北京的 10 种脊虎天牛属甲虫的分种检索表。

关键词: 天牛亚科; 天牛族; 分类; 新异名; 新记录

Introduction

Three species of *Xylotrechus* Chevrolat, 1860 were described from Beijing: *Clytus polyzonus* Fairmaire, 1888, *Xylotrechus bifeneistratus* Pic, 1916, and *Xylotrechus pekingensis* Pic, 1939. *Xylotrechus pekingensis* Pic, 1939 was synonymized with *Xylotrechus yanoi* Gressitt, 1934 by Gressitt (1951). Gressitt (1951) recorded three species from Beijing: “*X. chinensis*, *X. polyzonus* and *X. yanoi*”. Hua (2002) did not separated Beijing from Hebei specimens except for *X. yanoi*. Löbl & Smetana (2010) only marked “BEI” for one species, *X. yanoi*, while for *X. bifeneistratus*, they did not provide any detailed locality, only “CH”. Lin (2017) included four species from Beijing among the 15 species from Shaanxi, by adding *X. rufilius*. Chen *et al.* (2019) recorded five species from Beijing, by adding *X. hircus* while missing *X. rufilius*, while Yu (2020) also recorded five species, by adding *X. dominula* and *X. grayii* but missed *X. bifeneistratus* and *X. rufilius*. Viktora (2020a) also reported *X. dominula* from Beijing. Danilevsky (2020) included four species from Beijing, “*X. bifeneistratus*, *X. hircus*, *X. polyzonus* and *X. yanoi*”. Thus, there have been eight species recorded from Beijing before this research.

In this paper, we synonymize *Xylotrechus bifeneistratus* Pic, 1916 with *Xylotrechus polyzonus* (Fairmaire, 1888), newly report *X. ibex* (Gebler, 1825), *X. pyrrhoderus* Bates, 1873 and *X. robusticollis* (Pic, 1936) from Beijing, and record several new localities for species occurring in Beijing. Finally, we provide a key to the ten species distributed in Beijing.

Material and methods

Type specimens and specimens studied are deposited in the following institutions, museums or private collections:

- BJFU — Beijing Forestry University, Beijing, China
- BMNH (= NHML) — Natural History Museum, London, UK
- BPBM — Bernice Pauahi Bishop Museum, Honolulu, USA
- CAU — China Agricultural University, Beijing, China
- CCGY — private collection of Guanyuan CAO, Beijing, China
- CJC — private collection of Chen JIN, Beijing, China
- CQNU — Chongqing Normal University, Chongqing, China
- CSJ — private collection of Jian SUN, Beijing, China
- CWC — private collection of Chao WU, Beijing, China
- CYXR — private collection of Xiaoran YANG, Beijing, China
- CSHL — private collection of Hongliang SHI, Beijing, China
- CZDK — private collection of Dakang ZHOU, Beijing, China
- EIHU — Entomological Institute, Hokkaido University, Sapporo, Japan
- IZCAS — Institute of Zoology, Chinese Academy of Sciences, Beijing, China
- KMNHO — Kanagawa Prefectural Museum of Natural History, Odawara, Japan
- MNHN — Muséum national d'Histoire naturelle, Paris, France
- NSMT — National Science Museum (Natural History) = National Museum of Nature and Science, Tokyo, Japan
- NWAFU — Northwest A&F (Agriculture and Forestry) University, Yangling, Shaanxi, China

SWU — Collection of Insects, Southwest University, Chongqing (ex Southwest Agricultural University), Chongqing, China

ZIN (= ZMAS) — Russian Academy of Sciences, Zoological Institute (Musée de Zoologie de l'Académie des Sciences de Saint-Petersbourg), Saint Petersburg, Russia

ZMUM — Moscow State University (= Zoological Museum, University of Moscow), Moscow, Russia

In addition, TD — Type depository and TL — Type locality.

Taxonomy

Xylotrechu Chevrolat, 1860

Clytus (*Xylotrechus*) Chevrolat, 1860: 456. Type species: *Clytus sartorii* Chevrolat, 1860, designated by Thomson, 1861: 221.

Xylotrechus: Thomson, 1861: 221.

Remarks. The genus *Xylotrechus* Chevrolat, 1860 is divided into five subgenera and 256 species/subspecies (Tavakilian & Chevillotte 2021), with four subgenera and 74 species/subspecies distributed in China (Chen *et al.* 2019). Viktora, the most active author of Clytini research in the Palaearctic and Oriental regions recently (Viktora 2020a, b, c, Viktora 2021), synonymized *Xylotrechus* (s. str.) *vomeri* Pesarini *et* Sabbadini, 2015 with *Xylotrechus apiceinnotatus* Pic, 1937, synonymized *Xylotrechus multisignatus* Pic, 1915, *Xylotrechus lateralis fracturis* Guo *et* Chen, 2002 and *Xylotrechus* (s. str.) *triangulifer* Pesarini *et* Sabbadini, 2015 with *Xylotrechus lateralis* Gahan, 1906 (Viktora 2020b), described *Xylotrechus gratus* Viktora, 2020 and *Xylotrechus petrae* Viktora, 2020 from Sichuan (Viktora 2020a), and described *Xylotrechus kucerai* Viktora, 2021 from Shaanxi (Viktora 2021). Niisato (2020) deleted *Xylotrechus emaciatus* Bates, 1884 from China (Guangxi) since it was endemic to Japan and the Guangxi report was based on a misidentification. There have been 77 species/subspecies reported from China up to March 10, 2021.

Distribution (Chen *et al.* 2019). China, Mongolia, D. P. R. Korea, R. O. Korea, Japan, Ryukyu Islands, Vietnam, Laos, Cambodia, Thailand, India, Myanmar, Nepal, Bhutan, Sri Lanka, Philippines, Malaysia, Singapore, Indonesia, Bangladesh, Pakistan, Afghanistan, Iran, Tajikistan, Uzbekistan, Turkmenistan, Kyrgyzstan, Kazakhstan, Russia (Siberia), Turkey, Azerbaijan, Georgia, Cyprus, Syria, Armenia, Israel, Russia (Europe); Europe, Africa, Australia, Oceania, North America, South America.

1. *Xylotrechus* (*Xyloclytus*) *chinensis chinensis* (Chevrolat, 1852) (Figs 1, 2)

Clytus chinensis Chevrolat, 1852: 416. TL: China: Shanghai. TD: BMNH.

Xylotrechus chinensis: Chevrolat, 1863: 313; Cheo, 1935: 12; Hua, 2002: 236.

Xylotrechus chinensis var. *laterufescens* Pic, 1913: 19. TL: China: Taiwan (Formosa). TD: MNHN.

Xylotrechus sekii Matsushita, 1936: 146. TL: China: Taiwan (Formosa, Kuraru). TD: EIHU.

Xylotrechus chinensis var. *griseofasciatus* Pic, 1943: 1. TL: China. TD: MNHN.

Xylotrechus (*Xyloclytus*) *chinensis*: Gressitt, 1951: 238; Löbl & Smetana, 2010: 181.

Xylotrechus (*Xyloclytus*) *chinensis chinensis*: Lin, 2017: 192, pl. 16, fig. 4; Chen *et al.*, 2019: 173; Danilevsky, 2020: 251.

Xylotrechus (*Xyloclytus*) *chinensis kurosawai* Fujita, 2010: 30, figs 2–17. TL: Japan. TD: KMNHO. Synonymized by Niisato, 2020: 19.

Specimens examined. Beijing, 1♂ (Fig. 1), Xicheng Dist., Xijiaogongyuan, 09-VI-1952, leg. Yiran ZHANG (IZCAS); 1♀, same data but 20-VI-1952; 1♀, same data but 15-VII-1952; 1♀, Xicheng Dist., Beihai, host: *Morus alba*, IX-1944 (IZCAS); 1♀, Haidian Dist., Zhongguancun, VII-1982 (IZCAS, IOZ(E) 1904766); 2♂2♀, Haidian Dist., Xishan, 06-VII-2018, leg. Chao WU (CWC); 1♀, Haidian Dist., Beijing botanical garden, Fanghuodao, before 2020, leg. Chen JIN (CJC); 1♂, Mentougou Dist., 11-VII-1957 (IZCAS); 1♀, Mentougou Dist., 581 m, 115.70536°E, 40.01711°N, 25-VII-2017, leg. Siyu GONG (CAU); 1♀, Mentougou Dist., Zhaojiawacun, 08-VII-2020, leg. Jian SUN (CSJ); 1♀ (Fig. 2), Miyun Dist., Shichengzhen, Lishugoucun, Wuzuoloulinchang, 26-VIII-2015, collected larva and emerged in lab, leg. Meiyong LIN (IZCAS); 1♀, Beijing, host: branches of *Morus alba*, 15-VII-1955 (IZCAS); 1♀, same data but 10-VII-1957; 4♂2♀, Beijing, host: branches of *Morus alba*, 01-VIII-1957 (IZCAS); 2♂1♀, same data but 04-VIII-1957; 1♀, Beijing, 01-VIII-1957 (IZCAS); 1♀, Beijing, 26-VI-1973, leg. Zhen PAN (IZCAS); 1♀, Peking (IZCAS). Shandong: 1♀, Jinan, 14-IX-1934 (IZCAS). Shaanxi: 1♂, Zhen'an, 09-VII-1960 (IZCAS, IOZ(E)1899816); 1♀, Xi'an, 25-VI-1981 (IZCAS); 1♀, Zhen'an, host plant: *Morus alba*, 09-VII-1960 (NWAUFU); 1♀, Huangling County, Jianzhuang, host plant: *Morus alba*, 17-VIII-1962 (NWAUFU). Jiangsu: 1♀, Soochow (= Suzhou), VIII-1923 (IZCAS); 1♀, Ithing (= Yixing), 03-VIII-1933, coll. O. Piel (IZCAS). Shanghai: 1♂, Shanghai, 05-VII-1919 (IZCAS); 1♀, Zi-ka-wei (= Xujiahui), 08-VI-1922 (IZCAS). Zhejiang: 3♀, Huchow, 25-VII-1934 (IZCAS). Hong Kong: 1♀, Hong Kong (IZCAS).

Distribution. China: Liaoning, Beijing (Xicheng Dist., Haidian Dist., Mentougou Dist., Miyun Dist.), Tianjin, Hebei, Shanxi, Shandong, Henan, Shaanxi, Gansu, Jiangsu, Shanghai, Anhui, Zhejiang, Hubei, Jiangxi, Fujian, Taiwan, Guangdong, Hong Kong, Guangxi, Sichuan, Yunnan, Xizang; D. P. R. Korea; R. O. Korea; Japan.

Host plant. *Morus alba* (Moraceae), *Morus bombycis* (Moraceae), *Pyrus malus* (Rosaceae) (Cheo 1935; Gressitt 1951), *Vitis vinifera* (Vitaceae), *Malus pumila* (Rosaceae) (Hua 2002).

Remarks. Cheo (1935) first recorded this species from Peiping (= Beijing). Gressitt (1951) cited Cheo and was followed by Lin (2017) and Chen *et al.* (2019), but was missed by Hua (2002) and Danilevsky (2020).

2. *Xylotrechus (Xylotrechus) robusticollis* (Pic, 1936) (Figs 3, 4)

Clytus robusticollis Pic, 1936: 4. TL: China (Jiangxi). TD: MNHN.

Xylotrechus robusticollis: Gressitt, 1940b: 70; Gressitt, 1951: 250; Hua, 2002: 237; Lin, 2017: 199, pl. 16, fig. 10.

Xylotrechus (Xylotrechus) robusticollis: Löbl & Smetana, 2010: 183; Chen *et al.*, 2019: 177; Danilevsky, 2020: 254.

Specimens examined. Beijing: 1♂ (Fig. 4), Mentougou Dist., Baihuashan, 1800 m, 26-VII-1985 (IZCAS); 1♂, Fangshan Dist., Shangfangshan, 400 m, 19-VII-1961, leg. Shuyong WANG (IZCAS). Hebei: 2♂ (Fig. 3), Qinhuangdao, Zushan, 11–12-VIII-2003 (IZCAS). Shaanxi: 1♀, Ziyang County, 08-VII-1964 (IZCAS); 1♂, Ankang, VI-1980 (NWAUFU). Hubei: 1♂, Xuan'en, Xiaoguan, 900 m, 03-VIII-1984, leg. Shuyong WANG (IZCAS). Jiangxi: 2♂2♀, Ku-Ling (= Guling), 18-VII-1935, coll. O. Piel (IZCAS); 4♀, same data but 19-VII-1935; 2♂2♀, same data but 20-VII-1935; 2♂4♀, Ku-Ling (= Guling), 22-VII-1935, coll. O. Piel (IZCAS); 3♂1♀, same data but 23-VII-1935; 2♂, same data but 25-VII-1935; 3♂4♀, Ku-Ling (= Guling), 26-VII-1935, coll. O. Piel (IZCAS); 6♂2♀, same

data but 27-VII-1935; 3♂4♀, same data but 29-VII-1935; 1♂2♀, same data but 30-VII-1935; 1♀, same data but 01-VIII-1935; 1♀, same data but 03-VIII-1935; 1♂2♀, same data but 05-VIII-1935; 2♀, same data but 06-VIII-1935; 1♀, same data but 07-VIII-1935; 1♀, same data but 13-VIII-1935; 1♀, same data but 20-VIII-1935; 1♀, Jiujiangshi, Lushanfengjingqu, 28-VI-2006, leg. Hongbin LIANG, Ye LIU & Sota (IZCAS); 1♂, Lushan, 24–26-VII-2004 (CSHL); 2♂, Lushan, VII-2003, leg. Cheng DENG(CSHL).

Distribution. China: Beijing (new record, Mentougou Dist., Fangshan Dist.), Hebei (new record), Liaoning, Shaanxi, Hubei, Hunan (new record), Jiangxi, Sichuan, Guizhou.

Host plant. Adults on *Spiraea* (Rosaceae) and *Lindera* (Lauraceae) (Gressitt 1951; Hua 2002).

Remarks. It is recorded from Beijing and Hebei for the first time, based on specimens deposited in IZCAS. It is also newly recorded from Hunan Province, based on a picture from Hunan, Taoyuan County, Wuyunjie Nat. Rev. through Dr. Guohua HUANG (personal communication in Feb. 2021).

3. *Xylotrechus (Xylotrechus) ibex* (Gebler, 1825) (Figs 5A, 5B)

Clytus ibex Gebler, 1825: 53. TL: Russia. TD ZIN.

Clytus rectangulus Motschulsky, 1875: 149. TL: Russia. TD: ZMUM. Synonymized by Plavilstshikov, 1915: 79.

Clytus angulosus Motschulsky, 1875: 150. TL: Russia. TD: ZMUM. Synonymized by Plavilstshikov, 1915: 79.

Clytus fugitives Thieme, 1881: 100. TL: Russia: Siberia, Amur. TD: unknown. Synonymized by Kraatz, 1881: 336.

Xylotrechus ibex: Ganglbauer, 1882: 728; Hua, 2002: 236; Xu & Neng, 2007: 75, 1 fig.; Lin, 2017: 195.

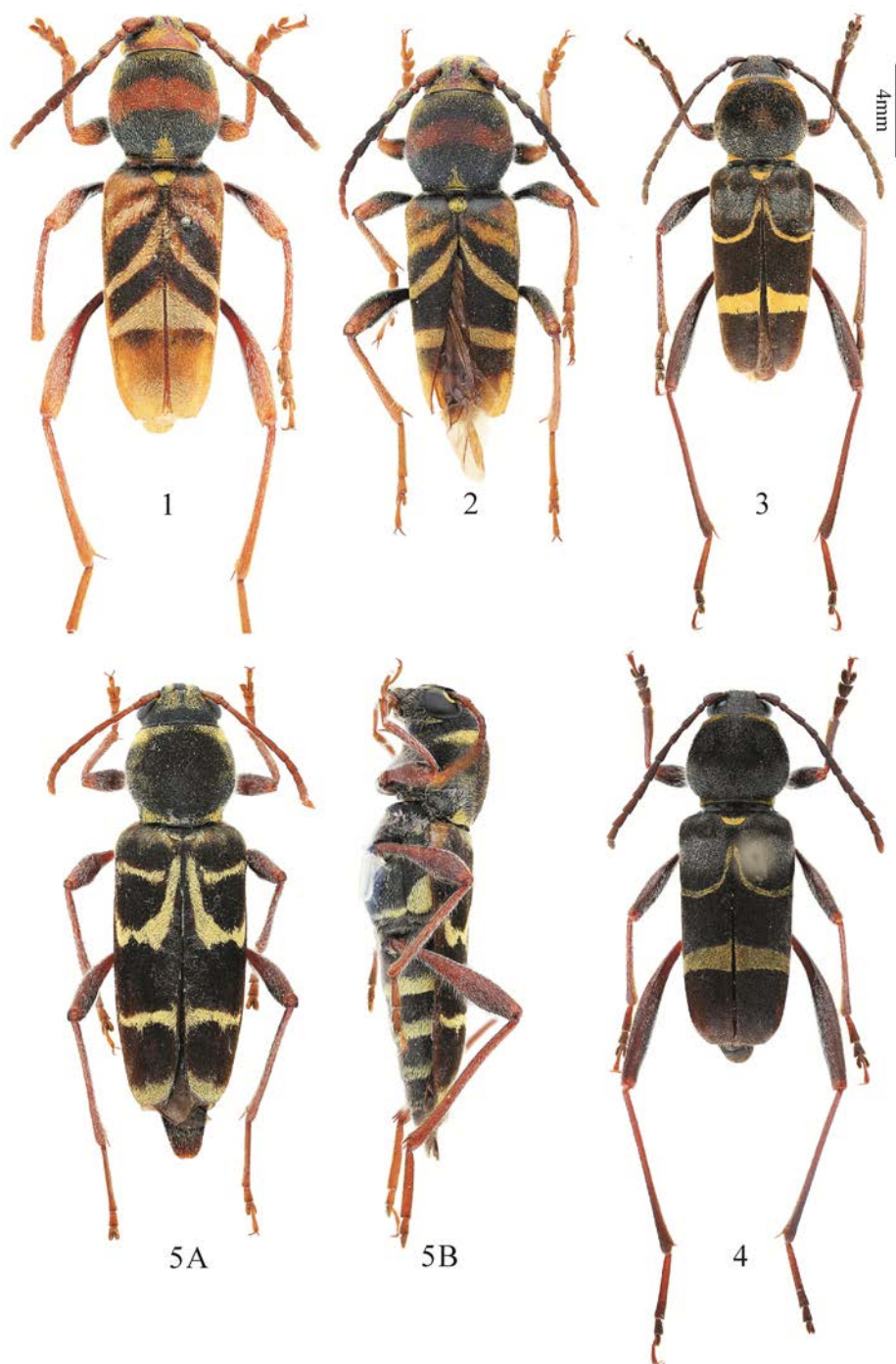
Xylotrechus (Xylotrechus) ibex: Gressitt, 1951: 244; Löbl & Smetana, 2010: 182; Chen *et al.*, 2019: 175; Danilevsky, 2020: 253.

Specimens examined. Heilongjiang: 1♀, Dailing, 18-VII-1956 (IZCAS); 1♀, Dailing, 25-V-1957 (IZCAS); 1♂, same data but 14-VI-1956; 1♂, Dailing, Liangshuigou, 26-VII-1956 (IZCAS); 1♀, Harbin, 29-VI-1945 (IZCAS); 2♂, Yichun, 14-VI-1956 (IZCAS); 1♂, same data but 18-VII-1956; 1♂, Yichun, host: *Betula platyphylla*, 30-V-1957 (IZCAS). Jilin: 1♂, Shangying, 20-VI-1982, leg. Boan WEI (IZCAS). Liaoning: 1♀, Gaolingzi, 14-VII-1940 (IZCAS); 1♂, same data but 10-VII-1942; 2♂2♀, Gaolingzi (IZCAS). Beijing: 1♀, Haidian Dist., Beijing Forestry University, 01-IV-2014, leg. Zhiliang WANG (IZCAS). Ningxia: 1♀, Lingwu County, 13-VI-1981 (IZCAS); 1♀, Lingwu County, host: *Betula platyphylla*, 11-VII-1981 by light trap (IZCAS).

Distribution. China: Heilongjiang, Jilin, Liaoning, Inner Mongolia, Beijing (new record, Haidian Dist.), Shaanxi, Ningxia, Gansu, Xinjiang, Hunan, Fujian, Guangdong, Sichuan; Mongolia; Kazakhstan; Russia (Siberia); Russia (Europe); Europe.

Remarks. *Xylotrechus ibex* (Gebler, 1825) and *X. clarinus* Bates, 1884 were mixed together easily, since their pubescent markings are the same (Xu & Neng 2007). T. Niisato believed that true relation between *X. ibex* and *X. clarinus* is geographical races of the same species (Niisato, 2021-April-11, personal communication), while M. L. Danilevsky considered them as different species, distinguished from each other by their different shapes of prothorax (Danilevsky, 2021-March-24, personal communication). In any case, the specimens from Beijing and NE China should be identified as *Xylotrechus ibex* (Gebler, 1825), whose pronotum is quite rounded (Fig. 8). The distribution records from Hunan, Fujian, Guangdong

and Sichuan (Chen *et al.* 2019) are very doubtful.



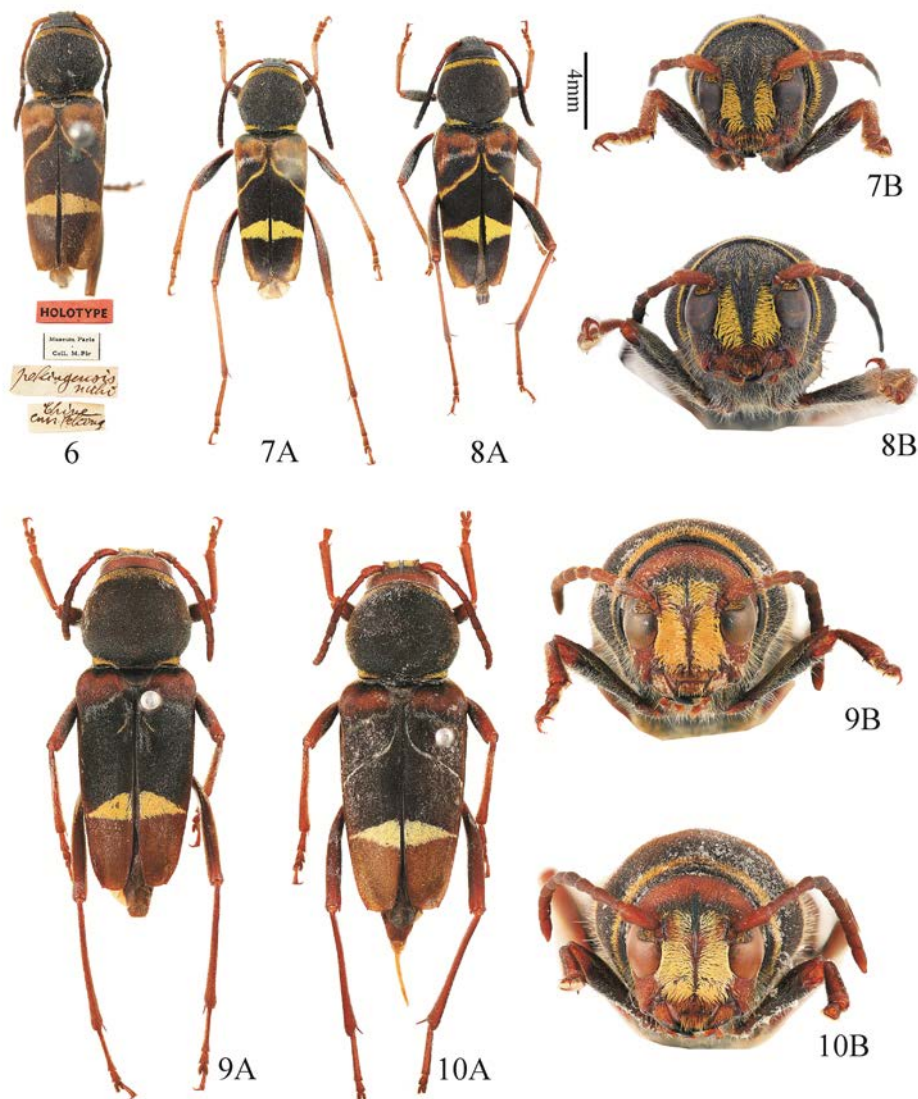
Figures 1–5. *Xylotrechus* spp. 1, 2. *X. chinensis* (Chevrolat, 1852); 1. ♂, from Beijing, Xicheng Dist.; 2. ♀, from Miyun Dist.; 3, 4. *X. robusticollis* (Pic, 1936); 3. ♂, from Hebei, Qinghuangdao; 4. ♂, from Beijing, Mentougou Dist.; 5. *X. ibex* (Gebler, 1825), ♀, from Beijing, Haidian Dist. A. Dorsal view; B. Lateral view.

4. *Xylotrechus pekingensis* Pic, 1939 stat. reinstated (Figs 6–8)

Xylotrechus pekingensis Pic, 1939: 3. TL: China (Beijing). TD: MNHN.

Xylotrechus (Xylotrechus) yanoi: Gressitt, 1951: 252 (part); Hua, 2002: 237 (part); Löbl & Smetana, 2010: 183 (part); Chen *et al.*, 2019: 178 (part); Danilevsky, 2020: 255 (part).

Xylotrechus yanoi: Yu, 2020: 255, 1 fig. ; Lin, 2017: 200, pl. 17, fig. 2.



Figures 6–10. *Xylotrechus* spp. 6–8. *X. pekingensis* Pic, 1939; 6. Holotype, from env. Peking, photographed by Xavier Gouverneur; 7. ♂, from Beijing, Miyun Dist.; 8. ♀, from Beijing, Mentougou Dist.; 9, 10. *X. yanoi* Gressitt, 1934, from Japan, Fukuoka Pref., photographed by J. Yamasako. 9. ♂; 10. ♀; A. Dorsal view; B. Head, frontal view, not to scale.

Type material. Examined through pictures (Fig. 6) (unsure): 'Chine' / 'env. Peking' / ; 'Museum Paris' / 'coll./E. Licent'; '*pekingensis*' / 'mihi'; 'HOLOTYPE' (MNHN). From

original paper and the labels, we can not conclude the exact locality of this species. It must either from Beijing, or near Beijing but belong to Hebei. We have specimens from Beijing and Hebei to well define this taxon, and all the characters are stable.

Specimens examined. Beijing: 1♂1♀, Mentougou Dist., Xiaolongmen, 22-VI-2012, leg. Chao WU (CWC); 1♀, Mentougou Dist., Xiaolongmenlinchang, alt. 1130 m, 02-VIII-2003, leg. Dakang ZHOU (CZDK); 1♀ (Figs 8A, 8B), Mentougou Dist., Xiaolongmenlinchang, 26-VII-04-VIII-2015, leg. Xinlei HUANG by sweeping net (IZCAS); 1♀, Mentougou, Xiaolongmen, 16-VIII-2018, leg. Meiyong LIN (IZCAS); 1♂, Mentougou Dist., Xiaolongmenlinchang, alt. 1100 m, 17-22-VIII-2016, leg. Banxia group (CSHL); 1♂, Huairou Dist., Sunzhazicun, Labagoumenjingqu, 12-VII-2020, leg. Chao WU (CWC); 1♀, Huairou Dist., Dashuiyu, 06-VII-2004 (CSHL); 1♂ (Figs 7A, 7B), Miyun Dist., Yumengshan, 10-VII-2005, leg. Hongliang SHI (CSHL); 1♀, Miyun County, Huayuncun, 27-VII-2018, leg. Guanyuan CAO (CCGY); 2♂, Miyun County, Xishihu, 17-VII-2020, leg. Jian SUN (CSJ). Hebei: 1♀, Chahar, Yangkiaping, 13-VII-1937, coll. O. Piel (IZCAS); 1♂, Xuanhua, Linshan, 15-VII-1938 (IZCAS); 1♂, Qinhuangdao, Zushan, 11-12-VIII-2003 (IZCAS). Shaanxi: 1♀, Taibaishan, Haopingsi, alt. 1170 m, 03-VI-1982, leg. Wenjie SUN (NWFU); 1♀, Fuxian, Ziulingbaohuqu, Shihuigou, alt. 1256 m, 108.65577°E, 35.82770°N, 6-15-VII-2019 by Malaise trap (IZCAS).

Distribution. China: Beijing (Changping Dist. (Yu 2020), Mentougou Dist., Huairou Dist., Miyun Dist.), Hebei (new record), Shaanxi (new record).

Remarks. This species was synonymized with *Xylotrechus yanoi* Gressitt, 1934 by Gressitt (1951). They did look very similar to each other from dorsal view. However, *Xylotrechus pekingensis* Pic, 1939 can be distinguished from *X. yanoi* Gressitt, 1934 from frontal view, by the frontal carinae in form of a narrow “V” shaped and head entirely black (Figs 7B, 8B), instead of the frontal carinae in form of almost only one line and head mostly red (Figs 9B, 10B) in *X. yanoi* (Figs 9–10) from Japan. According to specimens deposited in IZCAS, this species is newly recorded from Hebei and Shaanxi.

5. *Xylotrechus (Xylotrechus) rufilius rufilius* Bates, 1884 (Figs 11, 12)

Xylotrechus rufilius Bates, 1884: 233. TL: Japan. TD: MNHN.

Clytus (Xylotrechus) magnicollis Fairmaire, 1888a: 34. TL: China. TD: MNHN. Synonymized with *X. rufilius* by Löbl & Smetana, 2010: 183.

Xylotrechus magnicollis var. *decoloratipes* Pic, 1910: 30. TL: China: Taiwan. TD: MNHN.

Xylotrechus magnicollis var. *atrithorax* Pic, 1910: 30. TL: China: Taiwan. TD: MNHN.

Xylotrechus gahani Stebbing, 1914: 352. TL: India. TD: unknown. Synonymized with *X. magnicollis* by Gardner, 1939: 13. [HN]

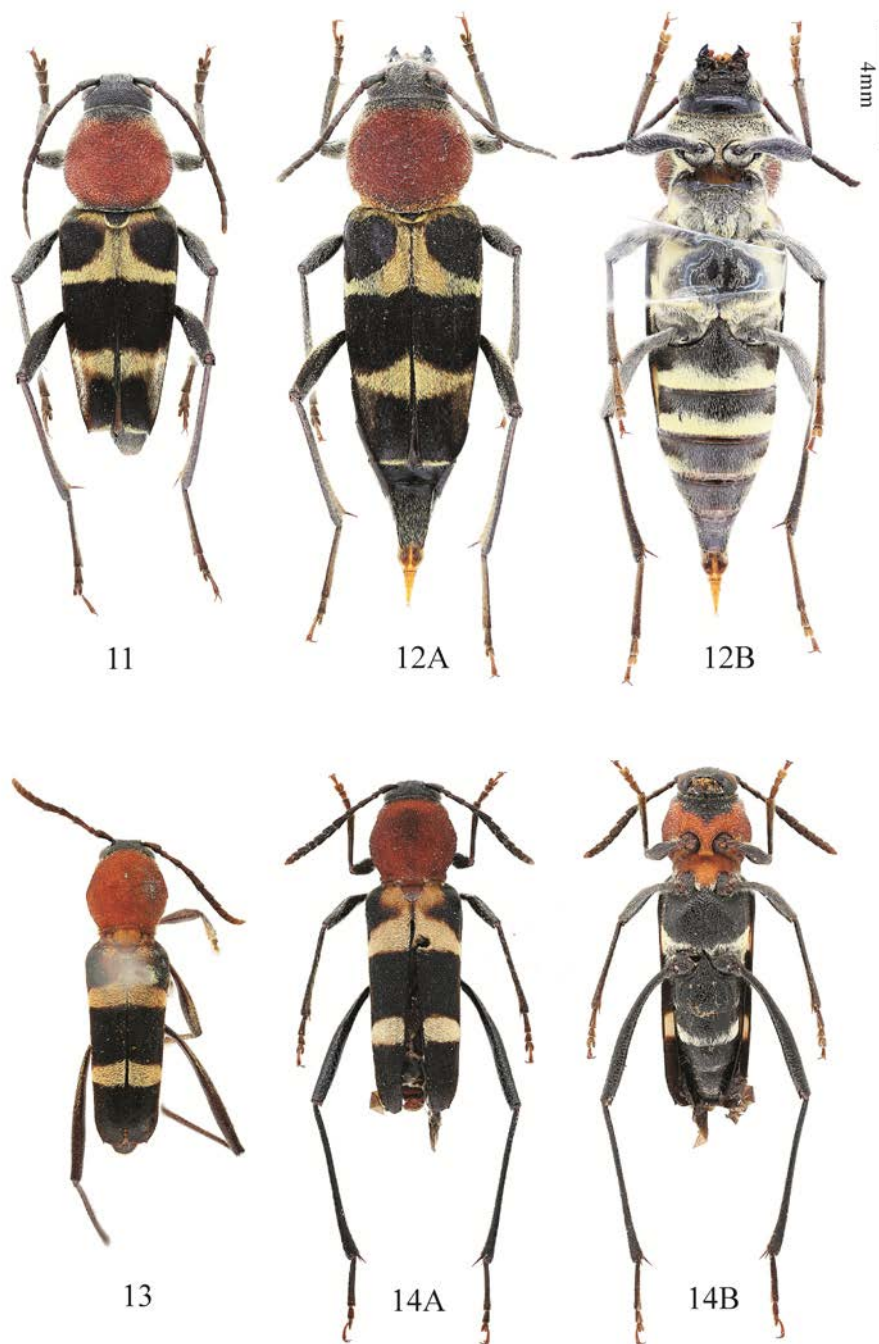
Xylotrechus renominatus Beeson, 1919: 151. TL: India. TD: unknown. Synonymized with *Xylotrechus magnicollis* Fairmaire, 1888 by Gardner, 1939: 13.

Xylotrechus irinae Plavilstshikov, 1925: 360. TL: Russia: Siberia. TD: ZMUM. Synonymized by Lobanov, Danilevsky & Murzin, 1981: 789.

Xylotrechus (s. str.) magnicollis: Gressitt, 1951: 248; Hua, 2002: 236.

Xylotrechus (Xylotrechus) rufilius: Gressitt, 1951: 250; Hua, 2002: 237; Lin, 2017: 199, pl. 17, fig. 1.

Xylotrechus (Xylotrechus) rufilius rufilius: Löbl & Smetana, 2010: 183; Chen *et al.*, 2019: 177; Danilevsky, 2020: 254.



Figures 11–14. *Xylotrechus* spp. 11, 12. *X. rufilius* Bates, 1884, from Beijing, Haidian Dist.; 11. ♂; 12. ♀; 13, 14. *X. pyrrhoderus pyrrhoderus* Bates, 1873; 13. ♂, from Anhui, Huangshan; 14. ♂, from Beijing, Mentougou Dist. A. Dorsal view; B. Ventral view.

Specimens examined. Beijing: 1♂, Shijingshan Dist., Badachu, before 2020, leg. Chen JIN (CJC); 3♂1♀, Haidian Dist., Jiufeng, 04-VI-2006, leg. Ye LIU (CSHL); 2♂, same data

but deposited in IZCAS; 1♂, Haidian Dist., Xishan, 06-VII-2018, leg. Chao WU (CWC); 1♀, Haidian Dist., Baiwangshan, alt. 150 m, 26-VI-2020, leg. Hongliang SHI & Ganyan YANG (CSHL); 9♂11♀ (Figs 11, 12), Haidian Dist., Summer Palace, host plant: *Koelreuteria paniculata*, 14-V-2015, leg. Meiying LIN (IZCAS); 1♀, same data but emerged in lab on 17-VI-2015; 4♂4♀, same data but emerged in lab on 22-VI-2018; 2♂2♀, Haidian Dist., Wofosi, 21-V-1957 (IZCAS); 1♂2♀, Haidian Dist. Yingtaogou, host plant: *Salix* sp., 31-V-1983, leg. Wenzhen MA (IZCAS); 1♂, Haidian Dist., Dajuesi, 18-V-1962, leg. Shuyong WANG; 1♂1♀, Haidian Dist., Wukesong, 28-V-1962 (IZCAS); 1♀, Mentougou Dist., 05-VII-2008 (BJFU); several pictures taken on Mentougou Dist., Baihuashan, by Nan YANG; 1♂1♀, Mentougou Dist., Qinyukou, 07-VI-2018, leg. Chao WU (CWC); 1♂, Fangshan Dist., Fozizhuangzhen, Fozizhuangxiang, 172 m, E115.886889°, N39.817822°, 03–16-VI-2020, leg. Xu ZHANG & Chen JIN by Malaise trap (IZCAS); 1♂1♀, Fangshan Dist., Huaigeda, 322 m, E115.629056°, N39.667636°, 03–16-VI-2020, leg. Xu ZHANG & Chen JIN by Malaise trap (IZCAS); 2♀, same data but 16-VI–12-VII-2020; 1♂1♀, Changping Dist., Duijiuyu, 07-V-2017, leg. Chao WU (CWC); 1♀, Daxing Dist., Shangzhuang, host plant: *Ulmus* sp., 04-V-1981 (IZCAS); 2♂1♀, Huairou Dist., Labagoumenzhen, Sunzhazicun, 28-VII-2004, leg. Feng YUAN (CZDK); 1♀, Huairou Dist., Labagoumenzhen, Huangdianzicun, 28-VII-2004, leg. Feng YUAN (CZDK); 3♂6♀, Pinggu Dist., Sizulou Nat. Rev., Dongding, alt. 473 m, 117.144981°E, 40.272522°N, 28-V–10-VI-2020, leg. Xu ZHANG & Chen JIN by Malaise trap (IZCAS); 1♂1♀, Pinggu Dist., Donggoucun, 28-V-2020, leg. Xu ZHANG (IZCAS); 2♂5♀, Pinggu Dist., Shilinxia, 01-VI-2020, leg. Guanyuan CAO (CCGY); 2♂1♀, Pinggu Dist., Yuzishancun, 13-V-2020, leg. Jian SUN (CSJ); 1♀, Miyun Dist., Shichengzhen, Wangzhuangcun, alt. 173 m, 116.443682°E, 40.530909°N, 09-VIII-2020, leg. Meiying LIN (IZCAS); 1♂, Miyun Dist., Xishihu, 17-VII-2020, leg. Jian SUN (CSJ); 1♀, Yanqing Dist., Songshan, 2013 (BJFU). Hebei: 5♂5♀, Prov., Hopeh, Sienhsien (= Xianxian = Xian County) (IZCAS); 1♂, Prov., Hopeh, Sienhsien (= Xianxian = Xian County), VI-1941, leg. B. Becquart (IZCAS). Heilongjiang: 1♀, Chalinhe, 11-VII-1957 (IZCAS); 1♂, Maoershan, 13-VII-1931 (IZCAS). Liaoning: 1♂, Gaolingzi, 10-VII-1942 (IZCAS); 1♀, Liaoning, 1974 (IZCAS). Shanxi: 1♀, Jiangxian, 27-V-1980, leg. Linfu LI (IZCAS); 1♂, Jiangxian, Dahelinchang, alt. 1020 m, 03-VIII-1972, leg. Shuyong WANG (IZCAS). Henan: 1♂, Baiyunshan, alt. 1600 m, 22-VII-2002, leg. Lijie ZHANG (IZCAS). Shaanxi: 1♂, Zhouzhi County, Houzhenzizhen, Laoxianchengcun to Qinlingliang, 1745–2021 m, 107.7471–107.7435°E, 33.8001–33.8149°N, 27-V-2007, leg. Meiying LIN (IZCAS); 1♂1♀, Foping County, Changjiaobaxiang, Shangshawocun, alt. 1215 m, 108.0136°E, 33.5971°N, 29-V-2007, leg. Meiying LIN (IZCAS, IOZ(E)1904775); 1♂, Foping County, Longcaoping, Xigou, alt. 1011 m, 07-VIII-1973, leg. Dingxi LIAO (IZCAS); 2♂, Zhen'an County, Yungaisi, Zhenmangcun, 21-VI-2014 (IZCAS); 1♂, Huangling, VII-1960 (IZCAS); 1♀, Danfeng County, Caichuanzhen, alt. 1070 m, 110°18'42"E, 33°53'14"N, 30-VI-2014, leg. Zhengzhong HUANG (IZCAS); 1♂, Yan'an, Fuxian, Ziowulingbaohuqu, Huaishuzhuang, 04-VIII-2019, leg. Jian SHEN (IZCAS); 1♀, Fuxian, Ziowulingbaohuqu, Huashugou, alt. 1256 m, 108.71143°E, 35.89698°N, 29-VI-15-VII-2019 by Malaise trap (IZCAS); 4♀, Fuxian, Ziowulingbaohuqu, Shihuigou, 29-VI-15-VII-2019 by Malaise trap (IZCAS); 1♂1♀, Fuxian, Ziowulingbaohuqu, Bamian Yao, alt. 1250 m, 19-VI-05-VII-2019 by Malaise trap (IZCAS). Zhejiang: 1♂, Anji, Longwangshan, alt. 1100 m, 14-VI-1996, leg. Hong WU (IZCAS). Jiangxi: 1♀, Guixi (IZCAS). Hunan: 1♀,

Tongdao County, VI-1981 (IZCAS). Fujian: 1♀, Fuzhou, IV-1958, leg. Chengchang ZHANG (IZCAS). Taiwan: 1♂, Formosana, Kuraru, V-1935, coll. JL GRESSITT (IZCAS); 1♂, Formosa, Takao Hsien, Laopi, 09-VI-1981, leg. Kezuka (IZCAS); 2♀, Formosa, Hori, 23–24-VIII-1947 (SYSU, Ce-001676-77); 1♂, Formosa, Kuraru, V-1935 (SYSU, Ce-001680, ex L. Gressitt collection). Guangdong: 1♂1♀, Longmen, 18-V-1980 (IZCAS). Guangxi: 1♂, Fangcheng, Dongzhongxiang, alt. 550 m, 05-VI-2000, leg. Wenzhu LI (IZCAS); 1♂, Baishou, 07-VII-1952 (IZCAS). Chongqing: 1♂, Mt. Jinyunshan, 09-V-2021, leg. Hongmin TIAN (SWU). Sichuan: 1♀, Dechang, 12-VI-1961, leg. Dingxi LIAO (IZCAS). Guizhou: 2♂3♀, Guizhou City Forest Park, 28-VI-2008, leg. Ye LIU (IZCAS). Yunnan: 1♂, Meng'a, 18-IV-1982, leg. Chenglai FANG (IZCAS); 1♂, Xishuangbanna, Meng'a, 1050–1080 m, 14-V-1958, leg. Fuji PU (IZCAS); 1♂, Diqing, Weixi County, Badixiang, Luohualuo, alt. 2391 m, 98.992865°E, 27.903993°N, 30-VI-2020, leg. Weidong HUANG (CAU).

Distribution. China: Beijing (Shijingshan Dist., Haidian Dist., Mentougou Dist., Fangshan Dist., Changping Dist., Daxing Dist., Huairou Dist., Pinggu Dist., Miyun Dist., Yanqing Dist.), Heilongjiang, Jilin, Liaoning, Hebei, Shanxi (new record), Shandong, Henan, Shaanxi, Zhejiang, Hubei, Jiangxi, Hunan, Fujian, Taiwan, Guangdong, Hainan, Hong Kong, Guangxi, Chongqing (new record), Sichuan, Guizhou (new record), Yunnan; D. P. R. Korea; R. O. Korea; Japan; Laos; India; Myanmar; Russia (Siberia).

Host plants. *Acer* sp. (Aceraceae), *Castanopsis sclerophylla* (Fagaceae), *Dalbergia* sp. (Fabaceae), *Diospyros kaki* (Ebenaceae), *Ficus elastica* (Moraceae), *Fraxinus mandshurica* (Oleaceae), *Melia azedarach* (Meliaceae), *Mimusops elengi* (Sapotaceae), *Quercus* sp. (Fagaceae), *Sophora* sp. (Fabaceae), *Ulmus parvifolia* (Ulmaceae), *Xylosma* sp. (Flacourtiaceae) (Gressitt 1951; Hua 2002), *Koelreuteria paniculata* (Sapindaceae) (Lin 2017).

Remarks. This species is recorded from Shanxi, Chongqing and Guizhou Provinces for the first time.

Koelreuteria paniculata of the family Sapindaceae is widely planted as a kind of landscape plant in Beijing. This beetle was a pest to the plant in the Summer Palace during 2014–2018 (personal observation and communication with Summer Palace), whose larvae can damage the plant seriously. There are three specimens bearing labels written “*Salix* sp.” as the host plant.

6. *Xylotrechus pyrrhoderus pyrrhoderus* Bates, 1873 (Figs 13, 14)

Xylotrechus pyrrhoderus Bates, 1873: 200. TL: Japan. TD: MNHN.

Xylotrechus (Xylotrechus) pyrrhoderus pyrrhoderus: Gressitt, 1951: 249; Löbl & Smetana, 2010: 183; Chen *et al.*, 2019: 177; Danilevsky, 2020: 254.

Xylotrechus pyrrhoderus: Xu & Neng, 2007: 77, fig.; Lin, 2017: 198, pl. 16, figs 8a, 8b.

Specimens examined. China, Beijing: 1♀, Haidian Dist., Wofosi, VII-1980 (BJFU); 1♂, Mentougou Dist., Xiaolongmenlinchang, 1100 m, 17–22-VIII-2015, leg. Yonglin ZHENG (CSHL); 1♂ (Fig. 14), same data but leg. Zhengxiang HE (CSHL); 1♀, Huairou Dist., Labagoumen, 28-VII-2020, leg. Xiaoran YANG (CYXR); 1♂, same data but 25-VII–1-VIII-2020. Shaanxi: 1♀, Zhouzhi, Louguantai, V-1962 (NWFU). Gansu: 1♀, Kangxian, Baiyunshan, 1250–1750 m, 12-VII-1998, leg. Decheng YUAN (IZCAS). Shanghai: 1♂, Prov. Kiangsu, Shanghai, VI-1936 (IZCAS, ex Musee Heude), Anhui: 1♂ (Fig. 13), Huangshan, VIII-1936 (IZCAS). Guangdong: 1♂, Ruyuan, Nanling Nat. Rev., Ruyang station, Houshan, alt. 1266 m, 19-VII-2008, leg. Ganyan YANG by beating (IZCAS). Chongqing: 1♂,

Wushan County, Guanduzhen, Guanmuping, alt. 1455 m, 30.917°N, 109.911°E, 05-VIII-2019, leg. Bin CHEN *etc.* (CQNU); 1♀, Wushan County, Guanduzhen, Sanchakou, 30.891°N, 109.799°E, 13-VII-2019, leg. Bin CHEN *etc.* (CQNU). Sichuan: 1♂, Yibin, 09-VIII-1963, leg. Jinlong MAO (IZCAS).

Distribution China: Beijing (new record, Haidian Dist., Mentougou Dist., Huairou Dist.), Jilin, Liaoning, Inner Mongolia, Shanxi, Shandong, Henan, Shaanxi, Gansu (new record); Jiangsu, Shanghai, Anhui (new record); Zhejiang, Hubei, Jiangxi, Fujian, Guangdong, Guangxi, Chongqing (new record), Sichuan, Guizhou; Mongolia; D. P. R. Korea; R. O. Korea; Japan; Russia (Siberia).

Host plant. *Vitis vinifera* Linnaeus (Vitaceae) (Gressitt, 1951).

Remarks. This species is newly recorded from Beijing, Gansu, Shanghai, Anhui, and Chongqing.

7. *Xylotrechus (Xylotrechus) polyzonus* (Fairmaire, 1888) (Figs 15–17)

Clytus polyzonus Fairmaire, 1888b: 143. TL: China: Beijing. TD: MNHN.

Xylotrechus poloyzonus: Aurivillius, 1912: 366; Yu, 2020: 254, 1 fig..

Xylotrechus bifeneistratus Pic, 1916: 180. TL: China: Beijing. TD: MNHN. **New synonym**

Xylotrechus jeholensis Kano, 1935: 5. TL: China: Jehol. TD: NSMT.

Xylotrechus (Xylotrechus) bifeneistratus: Gressitt, 1951: 240; Hua, 2002: 236; Löbl & Smetana, 2010: 181; Chen *et al.*, 2019: 174; Danilevsky, 2020: 252.

Xylotrechus (Xylotrechus) polyzonus: Gressitt, 1951: 249; Hua, 2002: 237; Löbl & Smetana, 2010: 183; Lin, 2017: 197, pl. 16, fig. 7; Chen *et al.*, 2019: 176; Danilevsky, 2020: 254.

Type material. Holotype of *Xylotrechus bifeneistratus* Pic, 1916 examined through pictures (Fig. 17) (♀): ‘Yati’ / ‘18.VIII.30’ / ‘Museum Paris’ / ‘coll./E. Licent’; ‘*Xylotrechus*’ / ‘*bifeneistratus*’ / ‘Pic’; ‘HOLOTYPE’ (MNHN). According to the original paper, the type locality is “Nord de Pékin”, the collector was Père Armand David and the date was 1865. According to the labels, the type locality “Yati” is located in the Northwest of Yanqing District, Beijing based on the “Etapes des Voyages du P. Licent (1914–1937)”, the date was 18-VIII-1930, while the additional “coll. E. Licent” might mean the collector was E. Licent or that the specimen belonged to Licent’s collection.

Specimens examined. Beijing: 1♂1♀, Haidian Dist., Yangtaishan, 03- IX-2003, leg. Hua YANG (CZDK); 1♀, Mentougou Dist., Xiaolongmen, 1200–1300 m, 20-VIII-2003 (CSHL, ex Collection of Ye LIU, Beijing, China); 1♀, Mentougou Dist., Xiaolongmencun, Xiaolongmenlinchang, 02-VIII-1982, leg. Weiwei ZHANG (CZDK); 1♂, Mentougou Dist., Xiaolongmen, 1100 m, 22-VIII-1990, leg. Yinheng HAN (IZCAS); 1♂, Mentougou Dist., Baihuashan, 26-VIII-1973, leg. Yinheng HAN (IZCAS); 1♂, same data but 21-VIII-1973; 1♀, Mentougou Dist., Baihuashan, alt. 1000 m, 22-VIII-1963, leg. Shuyong WANG (IZCAS); 1♀, same data but 1100–1320 m, 23-VIII-1963; 1♀, Baihuashan, 21-VIII-1973; 1♀, Mentougou Dist., Miaofengshan, 07-VIII-2019, leg. Guanyuan CAO (CCGY); 2♂ (Fig. 15), Fangshan Dist., Shangfangshan, alt. 400 m, 17-VII-1961, leg. Shuyong WANG (IZCAS); 1♂, Yanqing Dist., Sanpu, 18-VIII-1964, leg. Subai LIAO (IZCAS); 2♀ (Fig. 16), Yanqing Dist., Badaling, alt. 570 m, 03-VIII-1961, leg. Shuyong WANG (IZCAS). Hebei: 1♂, Zhuolu, Xiamawei, 19-VIII-2018, leg. Meiyong LIN (IZCAS); 1♀, Chahar, Yangkiaping, 19-VII-1937, coll. O. Piel (IZCAS). Shaanxi: 1♀, Ningshan, Huoditang, 07–24-VII-2016, leg. Yong WANG (IZCAS); 1♀, Fuxian, Ziwojing Nat. Rev., Bamianyao, alt. 1200 m, 35.80981°N,

108.71397°E, 23–26-VIII-2018, by flight trap (IZCAS); 1♀, Ankang, VI-1980 (NWAUF).

Distribution. China: Liaoning, Beijing (Huairou Dist. (Yu 2020), Haidianqu Dist., Mentougou Dist., Fangshan Dist., Yanqing Dist.), Hebei, Shaanxi, Hubei; D. P. R. Korea; R. O. Korea; Russia (Siberia).

Remarks. Although we had no chance to examine the syntypes of *Clytus polyzonus* Fairmaire, 1888, which was from Environs de Pékin and should be deposited in MNHN, we synonymize *Xylotrechus bifeneistratus* Pic, 1916 with it. The reasons include: a) *Xylotrechus polyzonus* is a well-known species and we have examined a series of specimens from North China; b) the type pictures of *Xylotrechus bifeneistratus* Pic, 1916 match with *X. polyzonus* very well, and their type localities are both from Beijing; c) there is not a second similar species from Beijing based on our research; and d) Carolus Holzschuh and Petr Viktora agree with this proposal (personal communication). According to the collection in IZCAS, there is no *X. polyzonus* from South China. The record from Guangdong of *X. polyzonus* and Yunnan of *X. bifeneistratus* could be a misidentification of *X. incurvatus* (Chevrolat, 1863).

8. *Xylotrechus (Xylotrechus) hircus* (Gebler, 1825) (Figs 18–20)

Clytus hircus Gebler, 1825: 54. TL: Russia. TD: ZIN.

Xylotrechus hircus: Chevrolat, 1863: 325; Hua, 2002: 236; Xu & Neng, 2007: 75, 1 fig.; Yu, 2020: 254, 1 fig..

Xylotrechus (s. str.) *hircus*: Gressitt, 1951: 244.

Xylotrechus (Xylotrechus) hircus: Löbl & Smetana, 2010: 182; Chen *et al.*, 2019: 175; Danilevsky, 2020: 253.

Specimens examined. Heilongjiang: 1♀ (Fig. 20), Dailing, alt. 390 m, 03-VIII-1956 (IZCAS); 1♀, Heiheshi, Aihui, 20-VI-1943, leg. H. Senda (IZCAS); 1♂, Ha'erbin, 29-VI-1945 (IZCAS); 1♀, Suihuashi, Wangkui County, Huanchengxiang, 12-VI-1979 (IZCAS); 1♂, Jidong County, Dongcun, 07-VI-1979 (IZCAS). Jilin: 1♂, Kirin Prov., Maoershan, 13-VII-1931 (IZCAS). Liaoning: 1♀, Xinjin (= Dalian Shi, Pulandian Dist.), host plant: *Abies fabri*, 1984, leg. Xiangzhi LIU (IZCAS); 1♂, Gaolingzi, 10-VII-1942 (IZCAS). Beijing: 1♂, Mentougou Dist., Lingshan, alt. 1700 m, 21-VI-2003, leg. Dakang ZHOU (CZDK); 1♂ (Fig. 18), Mentougou Dist. Baihuashan, alt. 1200 m, 27-V-1973, leg. Yongshan SHI (IZCAS); 1♀, Mentougou Dist., Xiaolongmen, alt. 1164–1210 m, 39.96°N, 115.43°E, 05-VII-2011, leg. Kuiyan ZHANG (IZCAS); 1♀ (Fig. 19), Huairou Dist., Baoshanzen, Sidaohacun, Beinonglinchang, alt. 800–1400 m, 21–24-VI-2019, leg. Hongliang SHI (CSHL). Hebei: 1♂, Changli, 01-VI-1978 (IZCAS); 1♀, East Tomb (IZCAS). Xinjiang: 1♂, Fuhai, alt. 500 m, 24-VII-1960, leg. Shuyong WANG (IZCAS).

Distribution China: Heilongjiang (new record), Jilin, Liaoning (new record), Inner Mongolia, Beijing (Changping Dist. (Yu, 2020), Mentougou Dist., Huairou Dist.), Hebei, Xinjiang (new record); Mongolia; D. P. R. Korea; R. O. Korea; Japan; Kazakhstan; Russia (Siberia).

Host plant. *Betula daurica* (Betulaceae) (Gressitt 1951; Hua 2002).

Remarks. This species is newly recorded from Heilongjiang, Liaoning and Xinjiang Provinces. The Beijing record was included in Chen *et al.* (2019). Catching an adult on leaves of *Artemisia* sp., Yu (2020) reported it from Changping Dist. of Beijing. Danilevsky (2020) also included a Beijing report.



Figures 15–20. *Xylotrechus* spp. 15–17. *X. polyzonus* (Fairmaire, 1888). 15. ♂, from Beijing, Fangshan Dist.; 16. ♀, from Beijing, Yanqing Dist.; 17. Holotype of *X. bifenestratus* Pic, 1916, with labels, ♀, from Beijing, Yanqing Dist., photographed by Xavier Gouverneur. 18–20. *X. hircus* (Gebler, 1825). 18. ♂, from Beijing, Mentougou Dist.; 19. ♀, from Beijing, Huairou Dist.; 20. ♀, from Heilongjiang, Dailing.

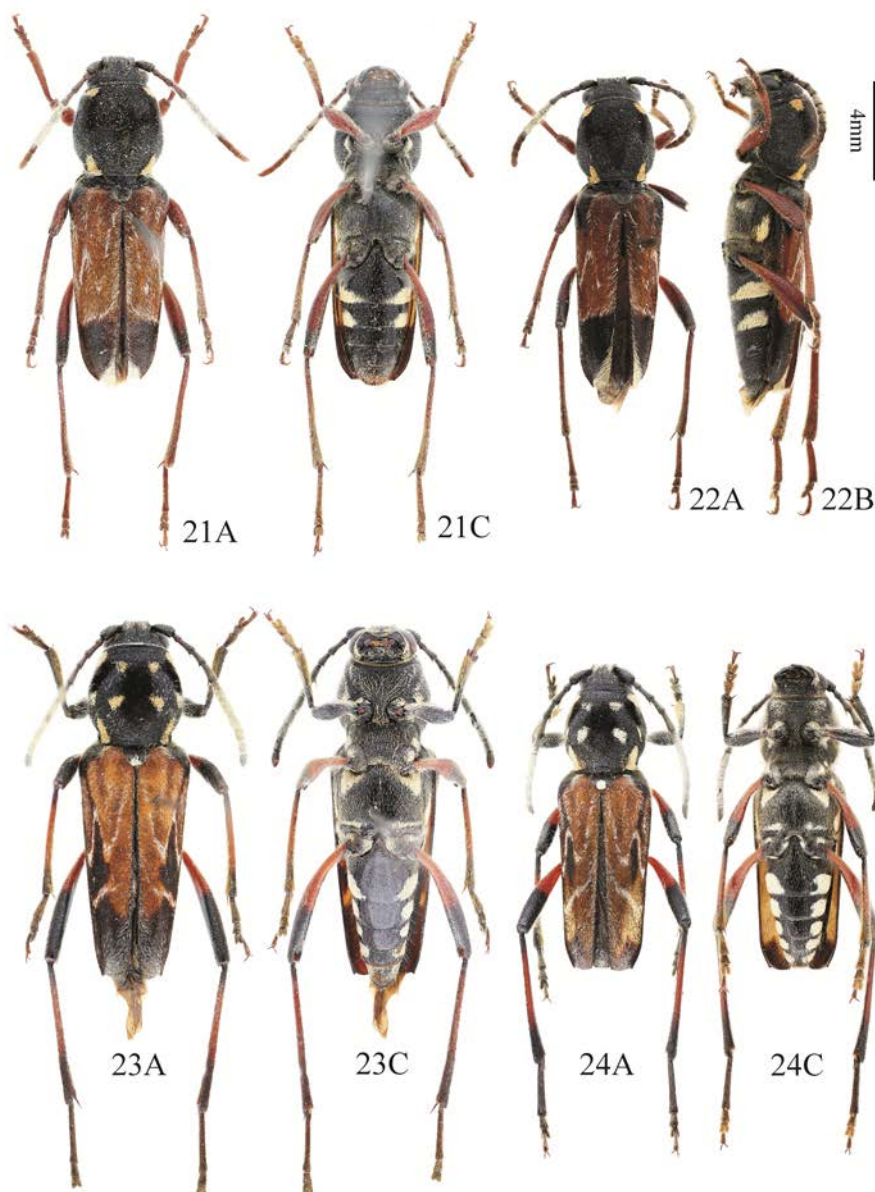
9. *Xylotrechus (Xylotrechus) dominula* (White, 1855) (Figs 21, 22)

Clytus Dominula White, 1855: 261. TL: China. TD: BMNH.

Xylotrechus dominulus [sic]: C. O. Waterhouse, 1874: xxix; Hua, 2002: 236; Yu, 2020: 253, 2 figs.

Xylotrechus (s. str.) dominulus [sic]: Gressitt, 1951: 243; Löbl & Smetana, 2010: 182; Chen *et al.*, 2019: 175.

Xylotrechus (Xylotrechus) dominula: Danilevsky, 2020: 252.



Figures 21–24. *Xylotrechus* spp. 21, 22. *X. dominula* (White, 1855). 21. ♂, from Beijing, Yanqing Dist.; 22. ♀, from Fujian, Wuyishan. 23, 24. *X. grayii grayii* (White, 1855). 23. ♀, from Heibei, Qinhuangdao; 24. ♂, from Beijing, Chaoyang Dist. A. Dorsal view; B. Lateral view; C. Ventral view.

Specimens examined. Beijing: 1♂2♀, Mentougou Dist., Zhaitangzhen, Qinfu, alt. 436 m, 39.967011°N, 115.669584°E, 30-V-2021, leg. Xu ZHANG & Meiyong LIN (IZCAS); 1♀, Mentougou Dist., 05-VII-2008 (BJFU); 1♂ (Figs 21A, 21C), Yanqing Dist., Sanpu, Badaling, 14-VI-1984, leg. Shengqiao JIANG (IZCAS); 2♀, Yanqing Dist., Badaling, 05-VI-1992, leg. Wenzhu LI (IZCAS); 1♀, Yanqing Dist., Xiahujiào, 21-VI-2021, leg. Chen JIN (CJC). Henan: 1♂, Xinxiang, Huixian, Baligou, 11-V-2002, leg. Weiping GUO (CQNU, HIST-HN58201711130234). Fujian: 1♂, Jianyang, Huangkeng, Guilin, 270 m, 11-IV-1960, leg. Yong ZUO (IZCAS); 1♀ (Figs 22A, 22B), Wuyishan, VIII-2005, leg. Meiyong LIN (IZCAS).

Distribution. China: Beijing (Pinggu Dist. (Yu 2020), Mentougou, Yanqing), Henan (new record), Gansu, Zhejiang, Fujian (new record), Guangdong.

Remarks. This species is recorded from Henan and Fujian Provinces for the first time. Yu (2020) reported one picture on leaves of *Artemisia argyi* from Pinggu Dist., and one adult specimen from Yanqing Dist., while Viktora (2020a) also reported this species from Beijing. Two females were walking on twigs of *Flueggea suffruticosa* on May 30 (personal observation). The species name “*dominula*” is a noun, so the ending cannot be changed according to the gender of the genus name. Most of authors use “*dominulus*” because the gender of *Xylotrechus* is masculine (Waterhouse 1874; Gressitt 1951; Hua 2002; Löbl & Smetana 2010; Chen *et al.* 2019; Yu 2020). However, the correct spelling is always “*dominula*” (White 1855; Danilevsky 2020).

10. *Xylotrechus (Xylotrechus) grayii grayii* (White, 1855) (Figs 23, 24)

Clytus grayii White, 1855: 261, pl. VI, fig. 4. TL: China. TD: BMNH.

Xylotrechus grayi [sic]: Bates, 1884: 233.

Xylotrechus (Xylotrechus) grayii: Gressitt, 1951: 243, pl. 9, fig. 8; Lin, 2017: 195; Yu, 2020: 254, 1 fig..

Xylotrechus grayii grayii: Hua, 2002: 236.

Xylotrechus (Xylotrechus) grayii grayii: Löbl & Smetana, 2010: 182; Chen *et al.*, 2019: 175; Danilevsky, 2020: 252.

Specimens examined. Beijing: 2♂ (Figs 24, 24C), Chaoyang Dist., Sunhexiang, flying around *Fraxinus chinensis* Roxb, 19-IV-2020, leg. Yong WANG (IZCAS). Hebei: 1♀ (Figs 23A, 23C), Qinhuangdao, Zushan, 11–12-VIII-2003 (IZCAS). Shandong: 2♂4♀, Jinan, 1978, leg. Qingqi LIU (IZCAS); 1♂3♀, Pingyi County, Zhengchengzhen, host: *Lonicera japonica* Thunb., VIII-2012, leg. Jianmin CHEN (IZCAS). Shaanxi: 1♀, Yan'an, Fuxian, Ziwojingbaohuqu, Laohugou, alt. 1345 m, 25-VI-2019, leg. Meixia YANG (IZCAS). Gansu: 1♂, Wenxian, Liujiaping, alt. 2100 m, 27-VI-1998, leg. Shuyong WANG (IZCAS); 2♂, Wenxian, Tieloukeqiaocun, alt. 1500 m, 23-VI-1999, leg. Hongjian WANG (IZCAS). Jiangsu: 1♀, Chemo, 03-V-1935, coll. O. Piel (IZCAS); 1♀, same data but 09-V-1935; 1♀, Kiangsu, Chinkiang, 16-V-1918 (IZCAS). Shanghai: 2♂, Shanghai, Zi-ka-wei, 03-VI-1923 (IZCAS); 1♀, same data but 12-V-1917; 1♂1♀, same data but 02-V-1920; 2♀, Shanghai, 29–30-IV-1947 (IZCAS); 1♀, Shanghai, 19-IV-1932, leg. A. SAVIO (IZCAS); 1♀, Shanghai, 13-IV-1955, leg. Keren HUANG (IZCAS). Hubei: 1♀, Shennongjia, alt. 900–1700 m, 26-V-1981, leg. Yinheng HAN (IZCAS). Fujian: 1♂, Wuyishan, Yunyoufeng, 23-IV-2013, leg. Zhiliang WANG (IZCAS); 1♀, Nanping, 23-V-1981 (IZCAS). Taiwan: 1♂, Formosa, Kuraru, coll. J. L. GRESSITT, 09-V-1935. Guangdong: 1♀, Kwangtung, Yaoshan (Mt. Range), Lin-hsien (District), 01–02-V-1934, leg. FK. TO (SYSU, Ce-001670). Sichuan: 1♂,

Wenchuan, Wolong, alt. 1600 m, 26-VII-1983, leg. Shuyong WANG (IZCAS); 1♂, Luding, Xinxing, alt. 2100 m, 15-VI-1983, leg. Yuanqing CHEN (IZCAS); 1♀, Emeishan, 08-VI-1955, leg. Keren HUANG & Gentao JIN (IZCAS); 1♂, Emeishan, alt. 1000 m, 07-VI-1979, leg. Huiying WANG (IZCAS); 1♀, Emeishan, Baoguosi, 18-VI-1957, leg. Zongyuan WANG (IZCAS); 1♀, Emeishan, Baoguosi, alt. 550–750 m, 11-V-1957, leg. Keren HUANG (IZCAS); 1♂3♀, Emeishan, 09-VI-1955, leg. Keren HUANG & Gentao JIN (IZCAS). Guizhou: 1♂, Luodian, 06-V-1983 (IZCAS).

Distribution. China: Beijing (Changping Dist. (Yu 2020), Chaoyang Dist.), Liaoning, Hebei, Shandong, Henan, Shaanxi, Gansu, Jiangsu, Shanghai, Zhejiang, Hubei, Hunan, Fujian, Taiwan, Guangdong, Hong Kong, Sichuan, Guizhou, Yunnan, Xizang; Korean Peninsula; Japan.

Host plants. *Tectona grandis* (Verbenaceae), *Coffea arabica* (Rubiaceae), *Paulownia tomentosa* (Paulowniaceae) (Gressitt 1951), *Ulmus* sp. (Ulmaceae), *Paulownia* sp. (Scrophulariaceae), *Lonicera japonica* (Caprifoliaceae), *Kalopanax pictus* (Araliaceae), *Randia spinosa* (Rubiaceae), *Citrus* sp. (Rutaceae), *Odina* sp. (Anacardiaceae), and *Firmiana simplex* (Sterculiaceae) (Hua 2002).

Remarks. The female (Figs 23A & 23C) from Hebei, Qinhuangdao is very similar to *X. grayii yaeyamanus* by the elytral coloration, compared with plate 34, figure 5 by Ohbayashi & Niisato (2007). The two males collected from Beijing were flying around *Fraxinus chinensis* Roxb.

A key to species of *Xylotrechus* from Beijing

1. Pronotum with ground color at least partly reddish..... 2
- Pronotum with ground color entirely black or dark brown..... 4
2. Pronotum entirely bright red, except for anterior margin black; scutellum not covered by yellow pubescence; hind femora entirely black..... 3
- Pronotum partly red, only the middle part red, the anterior and posterior margins black and yellow; scutellum covered by yellow pubescence; hind femora partly black..... *X. chinensis*
3. Pronotum aspirate and with many short transverse ridges; apical portions of elytra edged externally, or banded on apical margins, with pale; frons with four carinae at middle..... *X. rufilius*
- Pronotum finely granulose-punctate; apical portions of elytra entirely black; frons with carinae not very distinct..... *X. pyrrhoderus*
4. Elytra mostly covered by light colored pubescence, with black markings; each elytra with four black transverse stripes..... *X. polyzonus*
- Elytra mostly black, black brown or brown, with light colored pubescence..... 5
5. Elytra mostly black, with yellow pubescent transverse, oblique or curved stripes..... 6
- Elytra black brown or brown, with light colored pubescent stripes..... 9
6. Elytra with ground color entirely black; the yellow pubescence before middle curved, turning back to basal direction near margin; the yellow pubescence behind middle trapezoid-shaped, the yellow part near suture only slightly wider than that near margin..... 7
- Elytral base not all black but with brown transverse stripe; the yellow pubescence before middle oblique, keeping the direction to apex near margin; the yellow pubescence behind middle triangle-shaped, the yellow part near suture three times wider than that near margin..... 8
7. Antennae black brown; Elytra with only two pubescent markings, elytral apex without yellow pubescence..... *X. robusticollis*

- . Antennae reddish brown; Elytra with four pubescent markings, elytral apex with yellow pubescence · *X. ibex*
- 8. Frontal carinae in form of a narrow “V” shape, with additional middle carinae between them; head entirely black *X. pekingensis*
- . Frontal carinae in form of only one line; head mostly red, only partly black between antennal tubercles
..... *X. yanoi* (not distribute in Beijing)
- 9. Pronotum with a pair of pale parentheses-like marks on basal half (sometimes lacking), with four spots at four angles; antennae without distinct white pubescence *X. hircus*
- . Pronotum with more light colored pubescence spots, at least with four spots at four angles; antennae with distinct white pubescence on some segments 10
- 10. Prothorax with ten pale spots; scutellum whitish pubescent; each abdominal segment with two pubescent spots; elytra largely brownish *X. grayii*
- . Prothorax with four small yellowish white spots near corners; scutellum black; abdominal segments with only basal two ventrites with pubescent spots, lacking on last two segments, hardly developed on the middle segment; elytra brown on basal two-thirds while black on apical one-third *X. dominula*

Acknowledgements

We wish to express our thanks to Petr VIKTORA (Kutná Hora, Czech Republic) for discussion and help on the manuscript of the present paper. We are grateful to Xavier GOUVERNEUR (France) for providing the type pictures of *Xylotrechus bifenestratus* Pic, 1916 and *Xylotrechus pekingensis* Pic, 1939. We wish to express our sincere thanks to Steven W. LINGAFELTER (Hereford, Arizona, USA) and Carolus HOLZSCHUH (Villach, Austria) for improving this manuscript, to Junsuke YAMASAKO (Institute for Agro-Environmental Sciences, Ibaraki, Japan) for providing information and pictures of *X. yanoi* Gressitt, 1934 from Japan, to Hongliang SHI (BJFU & CSHL), Dakang ZHOU (CZDK), Jian SUN (CSJ), Chao WU (CWC), Guanyuan CAO (CCGY), Xiaoran YANG (CYXR), Yan MA and Lin LV (NWFU), Hu LI (CAU), Zhu LI (SWU), Jinlan LI and Bin CHEN (CQNU) and Chen JIN (CJC) for giving access to their collections, to Yong WANG and Zhiliang WANG (Beijing, China) for providing interesting specimens, and to Chen JIN (CJC) for taking most of the pictures.

This research was supported by the Biodiversity Survey and Assessment Project of Beijing from the Beijing Municipal Ecology and Environment Bureau, the Biodiversity Survey and Assessment Project of the Ministry of Ecology and Environment, China (2019HJ2096001006), and partly by Project of Biological Resources Survey in Wuyishan National Park and a grant (Y229YX5105) from the Key Laboratory of the Zoological Systematics and Evolution of the Chinese Academy of Sciences.

References

- Aurivillius C. 1912. Cerambycidae: Cerambycinae. Pars 39. In: Schenkling S (Ed.), *Coleopterorum Catalogus. Volumen 22. Cerambycidae I*. Junk, Berlin, pp. 1–574.
- Bates HW. 1873. On the longicorn Coleoptera of Japan. *The Annals and Magazine of Natural History*, (4)12 (69): 193–201.
- Bates HW. 1884. Longicorn beetles of Japan. Additions, chiefly from the later collections of G Lewis, and notes on the synonymy, distribution, and habits of the previously known species. *Journal of the Linnean Society of London, Zoology*, 18: 205–261.

- Beeson CFC. 1919. The food plants of Indian forest insects. Part II. *Indian Forester* (Allahabad), 45: 139–153.
- Chen L, Liu ZP & Li Z. 2019. Subfamily Cerambycinae Latreille, 1802. In: Lin MY & Yang XK (Eds.), *Catalogue of Chinese Coleoptera Volume IX. Chrysomeloidea: Vesperidae, Disteniidae, Cerambycidae*. Science Press, Beijing, pp. 98–216.
- Cheo MT. 1935. A preliminary list of the insects and arachnids injurious to economic plants in China. *Peking Natural History Bulletin*, 10: 5–37.
- Chevrolat LAA. 1852. Description de coléoptères nouveaux. *Revue et Magasin de Zoologie Pure et Appliquée*, (2)4: 414–424.
- Chevrolat LAA. 1860. Description d'espèces de *Clytus* propres au Mexique. *Annales de la Société Entomologique de France*, (3)8: 451–504.
- Chevrolat LAA. 1863. Clytides d'Asie et d'Océanie. *Mémoires de la Société Royale des Sciences de Liège*, 18(4): 253–350.
- Danilevsky ML. 2020. *Catalogue of Palaearctic Coleoptera, Volume: 6/1 -Chrysomeloidea I (Vesperidae, Disteniidae, Cerambycidae), Updated and Revised Second Edition*. Brill, Leiden, 712 pp.
- Fairmaire LMH. 1888a. Coléoptères de l'intérieur de la Chine. *Annales de la Société Entomologique de Belgique*, 32: 7–46.
- Fairmaire LMH. 1888b. Les Coléoptères des environs de Pékin (2e Partie). *Revue d'Entomologie*, 7: 111–160.
- Fujita H. 2010. Three new subspecies of *Xylotrechus chinensis* (Chevrolat, 1852) and *X. reductemaculatus* Hayashi, 1968 (Coleoptera, Cerambycidae) from Japan. *Gekkan-Mushi*, 476: 30–35.
- Ganglbauer L. 1882. Bestimmungs-Tabellen der europäischen Coleopteren. vii. Cerambycidae. *Verhandlungen der Zoologisch botanischen Wien*, 31[1881]: 681–758.
- Gardner JCM. 1939. New Indian Cerambycidae. *The Indian Forest Records (New Series), Entomology*, 6(1): 1–14.
- Gebler FA von. 1825. Coleopterorum Sibiriae species novae. In: Hummel AD (Ed.), *Essais entomologiques. Bd. I. Nr. 4*. Chancellerie privée du Ministère de l'Intérieur, St. Pétersbourg, pp. 42–57.
- Gressitt JL. 1934. New Longicorns from the Japan Empire (Coleopt., Cerambycidae). *The Pan-Pacific Entomologist, San Francisco*, 9(4) [1933]: 163–170.
- Gressitt JL. 1940. The longicorn beetles of Hainan Island. *Philippine Journal of Science*, 72(1-2): 1–239.
- Gressitt JL. 1951. Longicorn beetles of China. In: Lepesme P (Ed.), *Longicornia II, études et notes sur les longicornes, Volume 2*. Paul Lechevalier, Paris, pp. 1–667.
- Han Y & Lyu D. 2010. Taxonomic Review of the Genus *Xylotrechus* (Coleoptera: Cerambycidae: Cerambycinae) in Korea with a Newly Recorded Species. *Korean Journal of Applied Entomology*, 49(2): 69–82.
- Hua LZ. 2002. Cerambycidae. In: Hua LZ (Ed), *List of Chinese Insects, Vol. II*. Zhongshan (Sun Yat-sen) University Press, Guangzhou, pp. 189–237.
- Kano TF. 1935. Insects of Jehol [VI].-Order Coleoptera (1). Family Cerambycidae. *Reports of the First Scientific Expedition to Manchoukuo*, Section V, Division I, Part X: 1–10.
- Kraatz G. 1881. Zur Synonymie der *Clytus*-Arbeiten. *Deutsche entomologische Zeitschrift, Berlin*, 25(2): 336.
- Lin MY. 2017. *Insect Fauna of the Qinling Mountains, Volume VI (Coleoptera II), Cerambycid-beetles*. World Publishing Corporation, Xi'an, 510 pp.
- Lobanov AL, Danilevskij ML & Murzin SV. 1981. Sistematicheskij spisok usachei (Coleoptera, Cerambycidae) fauny SSSR. I. *Entomologicheskoe Obozrenie*, 60(4): 784–803.
- Löbl I & Smetana A. 2010. *Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea*. Apollo Books, Stenstrup, 924 pp.
- Matsushita M. 1936. Zur Kenntnis der japanischen Cerambyciden. *Kontyû*, 10(3): 146–149.
- Motschulsky VI. 1875. Énumération des nouvelles espèces de Coléoptères rapportés de ses voyages, par feu

- Victor Motschoulsky. *Bulletin de la Société Impériale des Naturalistes de Moscou*, 49(2): 139–155.
- Niisato T. 2020. New nomenclatural, taxonomic and geographical acts, and comments. In: Danilevsky ML (Ed.), *Catalogue of Palaearctic Coleoptera, Volume: 6/1 -Chrysomeloidea I (Vesperidae, Disteniidae, Cerambycidae), Updated and Revised Second Edition*. Brill, Leiden, pp. 19–23.
- Ohtbayashi N & Niisato T. 2007. *Longicorn Beetles of Japan*. Tokai University Press, Kanagawa, v–xii + 818 pp.
- Pic M. 1910. Coléoptères exotiques nouveaux ou peu connus. *L'Échange, Revue Linnéenne*, 26(304): 28–30.
- Pic M. 1913. Descriptions de 29 espèces et de plusieurs variétés. *Mélanges Exotico-Entomologiques*, 5: 7–20.
- Pic M. 1916. Nouveaux Clytini de Chine (Col. Longicornes). *Bulletin du Muséum National d'Histoire Naturelle*, 22(4): 180–182.
- Pic M. 1936. Nouveaux Coléoptères paléarctiques. *L'Échange, Revue Linnéenne*, 51(463): 1–4.
- Pic M. 1939. Coléoptères nouveaux, principalement de Chine. *L'Échange, Revue Linnéenne*, 55(476): 1–4.
- Pic M. 1943. Opuscula martiala IX. *L'Échange, Revue Linnéenne*, Numéro spécial 9: 1–16.
- Plavilstshikov NN. 1915. Notices synonymiques sur les longicornes (Coleoptera, Cerambycidae). *Russkoe Entomologicheskoe Obozrenie*, 15[1915–1916]: 79–80.
- Plavilstshikov NN. 1925. Eine neue *Xylotrechus*-Art aus Ost-Sibirien (Col. Cerambye). *Entomologische Mitteilungen Berlin*, 14: 360–361.
- Stebbing EP. 1914. *Indian Forest Insects of Economic Importance. Coleoptera*. Eyre & Spottiswoode, London xvi + 648 pp.
- Tavakilian GL & Chevillotte H. 2021. *Titan: base de données internationales sur les Cerambycidae ou Longicornes*. Version. <http://titan.gbif.fr/index.html>. (Accessed 10 March 2021)
- Thieme O. 1881. Neue Coleopteren aus Ost- und Mittel-Asien. *Berliner Entomologische Zeitschrift*, 25(1): 97–102.
- Thomson J. 1861. *Essai d'une classification de la famille des cérambycides et matériaux pour servir à une monographie de cette famille*. Chez l'auteur [James Thomson] et au bureau du trésorier de la Société entomologique de France, Paris, 404 pp [1–128 published in 1860].
- Viktora P. 2020a. New Clytini from the Palaearctic, Oriental and Australian Regions (Coleoptera, Cerambycidae, Cerambycinae). *Folia Heyrovskyana*, Series A 28(2): 102–158.
- Viktora P. 2020b. New nomenclatural, taxonomic and geographical acts, and comments. In: Danilevsky ML (Ed.), *Catalogue of Palaearctic Coleoptera, Volume: 6/1 -Chrysomeloidea I (Vesperidae, Disteniidae, Cerambycidae), Updated and Revised Second Edition*. Brill, Leiden, pp. 28–29.
- Viktora P. 2020c. New Clytini from Palaearctic and Oriental Regions (Coleoptera, Cerambycidae, Cerambycinae). *Folia Heyrovskyana*, series A 28(1): 103–154.
- Viktora P. 2021. New Asian species of *Xylotrechus* Chevrolat, 1860 (Coleoptera: Cerambycidae: Cerambycinae: Clytini). *Studies and Reports, Taxonomical Series*, 17(1): 155–176.
- Waterhouse CO. 1874. Synonymical Notes on Longicorn Coleoptera. *The Proceedings of the Entomological Society of London*, 1874: xxviii–xxix.
- White A. 1855. Part VIII. Longicornia II. In: White A (Ed). *Catalogue of the Coleopterous Insects in the Collection of the British Museum*. Taylor and Francis, London, pp. 175–412.
- Xu P & Neng N. 2010. *Coloured Illustrations of Longhorned Beetles in Mongolian Plateau*. Chinese Agricultural University Press, Beijing, 150 pp.
- Yu GY. 2020. *Photographic Atlas of Beijing Beetles*. Science Press, Beijing, 417 pp.